

Cessna Citation 560 Ultra, VP-CSN

AAIB Bulletin No: 10/2003	Ref: EW/G2003/04/20	Category: 1.1
INCIDENT		
Aircraft Type and Registration:	Cessna Citation 560 Ultra, VP-CSN	
No & Type of Engines:	2 JT15D-5D turbofan engines	
Year of Manufacture:	1997	
Date & Time (UTC):	23 April 2003 at 1559 hrs	
Location:	Runway 24, Edinburgh Airport, Scotland	
Type of Flight:	Public Transport (Passenger)	
Persons on Board:	Crew - 2	Passengers - 5
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Both main landing gear tyres deflated	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Age:	57 years	
Commander's Flying Experience:	17,212 hours (of which 1,920 were on type)	
	Last 90 days - 97 hours	
	Last 28 days - 36 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and inquiries by AAIB	

Synopsis

The parking brake was not selected fully 'OFF' prior to departure from Copenhagen resulting in the main tyres deflating during the subsequent landing ground roll at Edinburgh. The resultant degradation in the aircraft's take-off performance, from an unusually long and wide runway, was not appreciated by the crew. Distraction prior to takeoff and the lack of a checklist item, both in the pre-takeoff and before landing checklists, referring to the parking brake selector position, exacerbated this oversight.

History of flight

The aircraft was on a flight from Copenhagen to Edinburgh with the commander as the handling pilot. No anomalies were noted by the crew during the takeoff or the flight until landing at Edinburgh Airport. Weather conditions at Edinburgh were good, with a surface wind of 060°/7 knots; the runway was dry.

Following a normal touchdown on Runway 24, a fierce deceleration, disproportionate to the pedal force, occurred when the toe brake pedals were operated. Realising that the main wheels appeared to be locked, the commander made a rapid scan of the controls and noted that the parking brake selector was not fully off. He was uncertain whether it was in the partially or fully 'ON' position, but believed probably the latter. He swiftly selected it to 'OFF', but by this time both main landing gear tyres had deflated. Control of the ground run was retained and the crew brought the aircraft to a halt on the runway. The first officer evacuated the passengers and the Airport Fire Service attended. No fire occurred. Inspection revealed that damage was limited to the two main landing gear tyres, the wheels having rolled on the deflected sidewalls of the deflated tyres.

Examination by a maintenance organisation indicated that both main landing gear tyres had been abraded through and deflated, consistent with a lack of rotation of both wheels on the runway. Inspection found no evidence of anomalies with the wheel braking system.

The parking brake selector consists of a plunger type control located at the lower left of the flight deck forward control panel. The parking brake is 'OFF' when the selector is fully in and 'ON' when it is fully out; a travel of approximately five inches. There is no flight deck indication of parking brake selection, apart from the position of the selector.

In his full and frank report on the incident, the commander believed that a number of distractions immediately before departure from Copenhagen had resulted in the parking brake selector not being fully released when the aircraft left the holding point to line up for takeoff. The taxi route to the holding point for the runway had to be revised to cater for a last minute runway change (to Runway 22L) and the crew had to re-brief for their departure. After receiving their line-up clearance, for what they believed to be an immediate takeoff, the aircraft was held for an extended period, to the extent that the pitot heaters were de-selected to avoid their overheating. Further distractions arose when the crew had problems understanding an ATC request for information regarding their aircraft's wake vortex category. Additionally the crew then heard a landing aircraft report finals for Runway 22L before VP-CSN received take-off clearance. Neither pilot could recall whether the parking brake had been set while lined up.

The commander considered that any reduction in take-off performance from Runway 22 had not been apparent because of the unusual perspective associated with the particularly long runway (11,811 feet). Furthermore, trials conducted by the operator, subsequent to the accident, showed that it was possible to move the aircraft at speed with partial parking brake selected.

The commander was highly experienced with in excess of 12 years continuous experience of Citation C550 and C560 operations. He noted that the checklists used by the operator, derived from checklists issued by the aircraft manufacturer and by the manufacturer approved flight training organisation, do not specify a check that the parking brake selector is 'OFF'. He also noted that, although he did not consider it relevant to this incident, it was possible for the pilot to get his feet entangled in his headset lead and inadvertently drag the parking brake selector from the 'OFF' position. The commander subsequently arranged for the operator to amend the checklists to specify parking brake 'OFF' in both the pre-takeoff line-up checks and the pre-landing checks. He also informed the manufacturer and the training organisation and raised a Mandatory Occurrence Report.